

KANSAS

Agricultural Chemical Usage

1997 Soybean Pesticide Summary

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Cooperative Extension Service ■ Kansas State University ■ Manhattan

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OVERVIEW

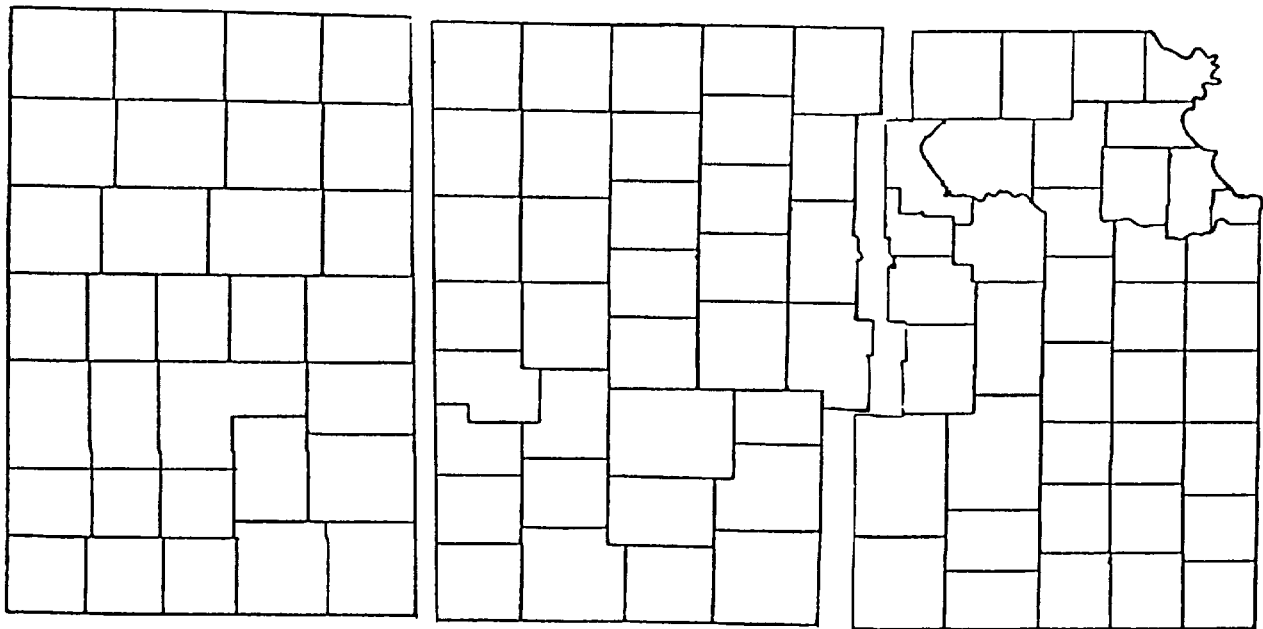
The data presented in this publication were funded through the Cooperative Extension Service, Kansas State University, and USDA's National Pesticide Impact Assessment Program.

This initiative is designed to provide farmers and ranchers the knowledge and technical means to respond independently and voluntarily to on- and off-farm environmental concerns. In the past, farm level data have been inadequate to determine the magnitude of water quality problems or the benefits and costs of alternative solutions for the farmer and other affected parties. These data will help fill some of the data needs that analysts require to find solutions to the complex environmental issues of the 1990's.

On-farm fertilizer and chemical use data for 1997 Kansas Soybean crop are included in this publication. For purposes of this survey, the State of Kansas was divided into two regions which can be described as Western & Central and Eastern Kansas. The map below outlines the boundaries that were used.

REGIONS 1 & 2

REGION 3



The information presented in this publication is a result of sample surveys conducted during the 1997 crop year. Chemical use data were collected for Soybeans in October 1997. A total of 200 sample fields were selected for the 1997 Soybeans survey with 136 useable reports. No data are published in this report unless at least 5 reports were received for that particular fertilizer or pesticide application.

HIGHLIGHTS

Kansas production of soybeans achieved a record high in 1997. Total production was 88.8 million bushels, which was up 20 percent from the 74 million bushels harvested in 1996. The average yield per acre for 1997 was 37.0 bushels per acre. This equals the record high yields of 1992 and 1996. Kansas harvested 2.4 million acres of soybeans in 1997, up 400,000 acres from 1996.

Nitrogen was applied to 20 percent of the soybean crop in Kansas in 1997. On average, the nitrogen was applied at planting. The most common method of application was broadcast with incorporation. The average application rate for nitrogen was 22 pounds per acre.

Kansas soybean producers applied phosphate to 18 percent of their soybean acres in 1997. The method used most often to apply phosphate was in seed row at planting. The average application rate was 33 pounds per acre.

Potash was applied to 15 percent of the Kansas soybeans grown in 1997. Forty-eight pounds per acre was the average application rate for potash. It was normally applied in the fall. The most common method of application for potash was broadcast with incorporation in the fall.

Ninety-four percent of all Kansas soybeans were treated with some sort of herbicide. This converts to 2.9 million pounds of herbicides being applied to Kansas fields. Sixty-five percent of Kansas soybean producers applied herbicide to their soybeans after planting. The most common method of applying herbicide was broadcasting without incorporation.

Due to a lack in numbers of good reports, some tables were unpublishable. Data on manure usage, tissue tests, scouting costs, and micro-nutrient usage was compiled but with such a low response rate, we do not feel confident in the data generated.

FIELD CHARACTERISTICS

SOYBEANS: SEEDING RATE BY REGION, 1997			
REGION	AVERAGE	MINIMUM	MAXIMUM
----- KERNELS PER ACRE -----			
REGION 1 & 2	163,136	80,000	252,000
REGION 3	166,965	84,000	252,000
STATE	165,839	80,000	252,000

SOYBEANS: USE OF PESTICIDE RESISTANT VARIETIES BY REGION, 1997	
REGION	HERBICIDE RESISTANT
----- PERCENT -----	
REGION 1 & 2	35
REGION 3	10
STATE	17

SOYBEANS: NO TILL BY REGION, 1997		
REGION	ACRES WITH NO TILL	AVERAGE
	PERCENT	CONSECUTIVE YEARS OF NO TILL
REGION 1 & 2	13	1
REGION 3	12	1
STATE	12	1

FIELD CHARACTERISTICS

SOYBEANS: SOIL CONSERVATION STRUCTURES OR PRACTICES, BY REGION, 1997						
REGION	GRASS WATERWAY	TERRACES	CONTOUR FARMING	STRIP CROPPING	UNDER GROUND TILE	OTHER
----- PERCENT -----						
REGION 1 & 2	30	33	20	8	1/	10
REGION 3	47	48	28	3	5	10
STATE	42	43	26	4	4	10

SOYBEANS: SPECIAL CLASSIFICATIONS, BY REGION, 1997		
REGION	CLASSIFIED HIGHLY ERODIBLE FIELD BY NRCS	CLASSIFIED WET LAND FIELD BY NRCS
----- PERCENT -----		
REGION 1 & 2	23	5
REGION 3	20	6
STATE	21	6



FERTILIZER USAGE BY TYPE OF FERTILIZER

SOYBEANS: TOTAL ACREAGE, PERCENT OF ACRES TREATED, AND APPLICATION RATES, BY REGION, 1997						
TYPE OF FERTILIZER	PLANTED ACRES		APPLICATION RATES			TOTAL APPLIED CROP YEAR (Mill. Lbs) <u>2/</u>
	ASB ACRES (000)	PCT TREATED <u>1/</u>	MEAN NUMBER APPLI-CATIONS	RATE PER APPLI-CATION	RATE PER CROP YEAR	
REGION 1 & 2	564.0					
NITROGEN		40	1.2	30	35	7,809.0
PHOSPHATE		33	1.0	32	32	6,031.0
REGION 3	1,886.0					
NITROGEN		13	1.1	16	17	4,291.0
PHOSPHATE		14	1.0	34	34	8,769.0
POTASH		13	1.0	52	53	13,312.0
STATE	2,450.0					
NITROGEN		20	1.1	22	24	12,100.0
PHOSPHATE		18	1.0	33	33	14,800.0
POTASH		15	1.1	48	53	18,900.0

1/ Refers to acres receiving one or more applications of a specific fertilizer ingredient. 2/ May not add due to rounding.



NITROGEN USAGE BY APPLICATION METHOD

SOYBEANS: TOTAL ACREAGE, PERCENT OF ACRES TREATED, AND APPLICATION RATES, BY REGION, 1997						
APPLICATION METHOD	PLANTED ACRES		APPLICATION RATES			TOTAL APPLIED CROP YEAR (MILL. LBS) <u>2/</u>
	ASB ACRES (000)	PCT TREATED <u>1/</u>	MEAN NUMBER APPLI-CATIONS	RATE PER APPLI-CATION	RATE PER CROP YEAR	
REGION 1 & 2	564.0					
BRDCST W/O INCORP		<u>3/</u>				
BRDCST W/ INCORP		12	1.2	25	30	2,039.0
IN SEED ROW		<u>3/</u>				
INJECT/KNIFED		<u>3/</u>				
BANDED		<u>3/</u>				
FOLIAR/DIRECT		<u>3/</u>				
REGION 3	1,886.0					
BRDCST W/O INCORP		<u>3/</u>				
BRDCST W/ INCORP		6	1.1	20	23	2,758.0
IN SEED ROW		<u>3/</u>				
INJECT/KNIFED		<u>3/</u>				
BANDED		<u>3/</u>				
FOLIAR/DIRECT		<u>3/</u>				
STATE	2,450.0					
BRDCST W/O INCORP		4	1.0	20	20	1,628.0
BRDCST W/ INCORP		8	1.1	22	24	4,797.0
IN SEED ROW		6	1.0	11	11	1,714.0
INJECT/KNIFED		2	1.0	69	69	3,526.0
BANDED		2	1.0	12	12	419.0
FOLIAR/DIRECT		<u>3/</u>				

1/ Refers to acres receiving one or more applications of a specific fertilizer ingredient.

2/ May not add due to rounding.

3/ Insufficient data to publish.

NITROGEN USAGE BY TIMING OF APPLICATION

SOYBEANS: TOTAL ACREAGE, PERCENT OF ACRES TREATED, AND APPLICATION RATES, BY REGION, 1997						
TIMING OF APPLICATION	ACRES		APPLICATION RATES			TOTAL APPLIED CROP YEAR (MILL. LBS) <u>2/</u>
	ASB ACRES (000)	PCT TREATED <u>1/</u>	MEAN NUMBER APPLI- CATIONS	RATE PER APPLI- CATION	RATE PER CROP YEAR	
REGION 1 & 2	564.0					
BEFORE SEEDING, FALL		10	1.2	39	48	2,568.0
BEFORE SEEDING, SPRING		12	1.0	46	46	3,207.0
AT SEEDING		18	1.0	20	20	2,034.0
REGION 3	1,886.0					
BEFORE SEEDING, FALL		4	1.0	22	22	1,454.0
BEFORE SEEDING, SPRING		5	1.2	21	24	2,427.0
AT SEEDING		4	1.0	5	5	395.0
AFTER SEEDING		<u>3/</u>				
STATE	2,450.0					
BEFORE SEEDING, FALL		5	1.1	29	32	4,022.0
BEFORE SEEDING, SPRING		7	1.1	29	32	5,634.0
AT SEEDING		8	1.0	12	13	2,428.0
AFTER SEEDING		<u>3/</u>				

1/ Refers to acres receiving one or more applications of a specific fertilizer ingredient.

2/ May not add due to rounding.

3/ Insufficient data to publish.

NITROGEN USAGE BY STANDARD SOIL TEST

SOYBEANS: TOTAL ACREAGE, PERCENT OF ACRES TREATED, AND APPLICATION RATES, BY REGION, 1997						
SOIL TEST	ACRES		APPLICATION RATES			TOTAL APPLIED CROP YEAR (MILL. LBS) <u>2/</u>
	ASB ACRES (000)	PCT TREATED <u>1/</u>	MEAN NUMBER APPLI- CATIONS	RATE PER APPLI- CATION	RATE PER CROP YEAR	
REGION 1 & 2	564.0					
WITH SOIL TEST		30	1.1	32	34	5,889.0
NO SOIL TEST		10	1.4	26	36	1,920.0
REGION 3	1,886.0					
WITH SOIL TEST		<u>3/</u>				
NO SOIL TEST		12	1.1	14	14	3,397.0
STATE	2,450.0					
WITH SOIL TEST		8	1.1	34	36	6,783.0
NO SOIL TEST		12	1.2	15	18	5,317.0

1/ Refers to acres receiving one or more applications of a specific fertilizer ingredient.

2/ May not add due to rounding.

3/ Insufficient data to publish.

NITROGEN USAGE BY PLANT TISSUE

SOYBEANS: TOTAL ACREAGE, PERCENT OF ACRES TREATED, AND APPLICATION RATES, BY REGION, 1997						
SOIL TEST	ACRES		APPLICATION RATES			TOTAL APPLIED CROP YEAR (MILL. LBS) <u>2/</u>
	ASB ACRES (000)	PCT TREATED <u>1/</u>	MEAN NUMBER APPLI- CATIONS	RATE PER APPLI- CATION	RATE PER CROP YEAR	
REGION 1 & 2	564.0					
USED TISSUE TEST		<u>3/</u>				
NO TISSUE TEST		35	1.2	29	34	6,728.0
REGION 3	1,886.0					
USED TISSUE TEST		<u>3/</u>				
NO TISSUE TEST		13	1.1	17	18	4,291.0
STATE	2,450.0					
USED TISSUE TEST		<u>3/</u>				
NO TISSUE TEST		19	1.1	21	24	11,019.0

1/ Refers to acres receiving one or more applications of a specific fertilizer ingredient.

2/ May not add due to rounding.

3/ Insufficient data to publish.

NITROGEN USAGE BY MANURE APPLICATION

SOYBEANS: TOTAL ACREAGE, PERCENT OF ACRES TREATED, AND APPLICATION RATES, BY REGION, 1997						
MANURE APPLICATION	ACRES		APPLICATION RATES			TOTAL APPLIED CROP YEAR (MILL. LBS) 2/
	ASB ACRES (000)	PCT TREATED 1/	MEAN NUMBER APPLI- CATIONS	RATE PER APPLI- CATION	RATE PER CROP YEAR	
REGION 1 & 2	564.0					
WITHOUT MANURE		40	1.1	30	35	7,809.0
REGION 3	1,886.0					
WITHOUT MANURE		13	1.1	17	18	4,291.0
STATE	2,450.0					
WITHOUT MANURE		20	1.1	22	25	12,100.0

1/ Refers to acres receiving one or more applications of a specific fertilizer ingredient.

2/ May not add due to rounding.

NITROGEN USAGE BY IRRIGATION METHOD

SOYBEANS: TOTAL ACREAGE, PERCENT OF ACRES TREATED, AND APPLICATION RATES, BY REGION, 1997						
METHOD OF IRRIGATION	ACRES		APPLICATION RATES			TOTAL APPLIED CROP YEAR (MILL. LBS) 2/
	ASB ACRES (000)	PCT TREATED 1/	MEAN NUMBER APPLI- CATIONS	RATE PER APPLI- CATION	RATE PER CROP YEAR	
REGION 1 & 2	564.0					
IRRIGATED		24	1.0	19	19	2,533.0
NON-IRRIGATED		16	1.3	43	58	5,276.0
REGION 3	1,886.0					
IRRIGATED		3/				
NON-IRRIGATED		11	1.1	16	17	3,494.0
STATE	2,450.0					
IRRIGATED		7	1.0	19	19	3,330.0
NON-IRRIGATED		13	1.3	23	28	8,770.0

1/ Refers to acres receiving one or more applications of a specific fertilizer ingredient.

2/ May not add due to rounding.

3/ Insufficient data to publish.

PHOSPHATE USAGE BY APPLICATION METHOD

SOYBEANS: TOTAL ACREAGE, PERCENT OF ACRES TREATED, AND APPLICATION RATES, BY REGION, 1997						
APPLICATION METHOD	PLANTED ACRES		APPLICATION RATES			TOTAL APPLIED CROP YEAR (MILL. LBS) <u>2/</u>
	ASB ACRES (000)	PCT TREATED <u>1/</u>	MEAN NUMBER APPLI-CATIONS	RATE PER APPLI-CATION	RATE PER CROP YEAR	
REGION 1 & 2	564.0					
BRDCST W/O INCORP		<u>3/</u>				
BRDCST W/ INCORP		11	1.0	36	36	2,159.0
IN SEED ROW		<u>3/</u>				
BANDED		<u>3/</u>				
REGION 3	1,886.0					
BRDCST W/O INCORP		<u>3/</u>				
BRDCST W/ INCORP		6	1.0	41	41	4,677.0
IN SEED ROW		7	1.0	25	25	3,111.0
INJECT/KNIFED		<u>3/</u>				
BANDED		<u>3/</u>				
STATE	2,450.0					
BRDCST W/O INCORP		2	1.0	40	40	1,540.0
BRDCST W/ INCORP		7	1.0	39	39	6,836.0
IN SEED ROW		8	1.0	23	23	4,703.0
INJECT/KNIFED		<u>3/</u>				
BANDED		2	1.0	42	42	1,691.0

1/ Refers to acres receiving one or more applications of a specific fertilizer ingredient.

2/ May not add due to rounding.

3/ Insufficient data to publish.

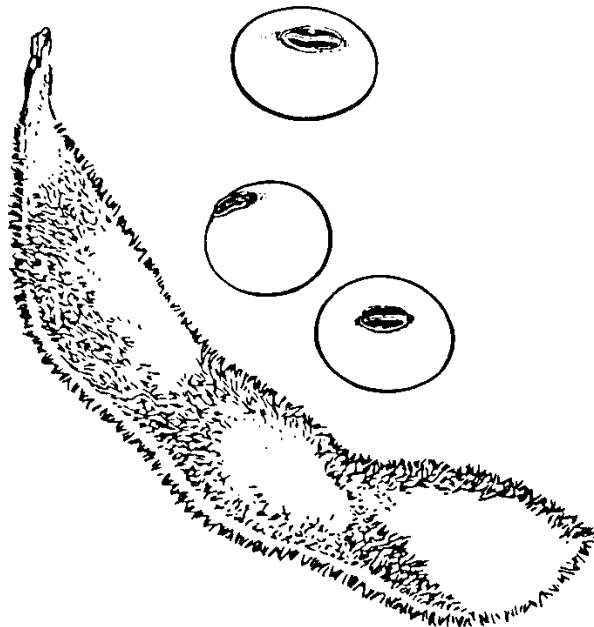
PHOSPHATE USAGE BY TIMING OF APPLICATION

SOYBEANS: TOTAL ACREAGE, PERCENT OF ACRES TREATED, AND APPLICATION RATES, BY REGION, 1997						
TIMING OF APPLICATION	ACRES		APPLICATION RATES			TOTAL APPLIED CROP YEAR (MILL. LBS) <u>2/</u>
	ASB ACRES (000)	PCT TREATED <u>1/</u>	MEAN NUMBER APPLI-CATIONS	RATE PER APPLI-CATION	RATE PER CROP YEAR	
REGION 1 & 2	564.0					
BEFORE FALL		<u>3/</u>				
BEFORE SPRING		8	1.0	43	43	1,836.0
AT SEEDING		19	1.0	28	28	3,025.0
REGION 3	1,886.0					
BEFORE FALL		2	1.0	46	46	1,540.0
BEFORE SPRING		5	1.0	39	39	3,859.0
AT SEEDING		7	1.0	26	26	3,370.0
STATE	2,450.0					
BEFORE FALL		3	1.0	40	40	2,709.0
BEFORE SPRING		6	1.0	41	41	5,695.0
AT SEEDING		9	1.0	27	27	6,396.0

1/ Refers to acres receiving one or more applications of a specific fertilizer ingredient.

2/ May not add due to rounding.

3/ Insufficient data to publish.



PHOSPHATE USAGE BY STANDARD SOIL TEST

SOYBEANS: TOTAL ACREAGE, PERCENT OF ACRES TREATED, AND APPLICATION RATES, BY REGION, 1997						
SOIL TEST	ACRES		APPLICATION RATES			TOTAL APPLIED CROP YEAR (MILL. LBS) <u>2/</u>
	ASB ACRES (000)	PCT TREATED <u>1/</u>	MEAN NUMBER APPLI-CATIONS	RATE PER APPLI-CATION	RATE PER CROP YEAR	
REGION 1 & 2	564.0					
WITH SOIL TEST		27	1.0	33	33	4,999.0
NO SOIL TEST		6	1.0	32	32	1,032.0
REGION 3	1,886.0					
NO SOIL TEST		14	1.0	33	33	8,769.0
STATE	2,450.0					
WITH SOIL TEST		6	1.0	33	33	4,999.0
NO SOIL TEST		12	1.0	34	34	9,801.0

1/ Refers to acres receiving one or more applications of a specific fertilizer ingredient.

2/ May not add due to rounding.

PHOSPHATE BY PLANT TISSUE

SOYBEANS: TOTAL ACREAGE, PERCENT OF ACRES TREATED, AND APPLICATION RATES, BY REGION, 1997						
SOIL TEST	ACRES		APPLICATION RATES			TOTAL APPLIED CROP YEAR (MILL. LBS) <u>2/</u>
	ASB ACRES (000)	PCT TREATED <u>1/</u>	MEAN NUMBER APPLI-CATIONS	RATE PER APPLI-CATION	RATE PER CROP YEAR	
REGION 1 & 2	564.0					
USED TISSUE TEST		<u>3/</u>				
NO TISSUE TEST		28	1.0	34	34	5,392.0
REGION 3	1,886.0					
NO TISSUE TEST		14	1.0	33	33	8,769.0
STATE	2,450.0					
USED TISSUE TEST		<u>3/</u>				
NO TISSUE TEST		17	1.0	34	34	14,161.0

1/ Refers to acres receiving one or more applications of a specific fertilizer ingredient.

2/ May not add due to rounding.

3/ Insufficient data to publish.

PHOSPHATE USAGE BY MANURE APPLICATION

SOYBEANS: TOTAL ACREAGE, PERCENT OF ACRES TREATED, AND APPLICATION RATES, BY REGION, 1997						
MANURE APPLICATION	ACRES		APPLICATION RATES			TOTAL APPLIED CROP YEAR (MILL. LBS) <u>2/</u>
	ASB ACRES (000)	PCT TREATED <u>1/</u>	MEAN NUMBER APPLI-CATIONS	RATE PER APPLI-CATION	RATE PER CROP YEAR	
REGION 1 & 2	564.0					
WITH MANURE		<u>3/</u>				
WITHOUT MANURE		33	1.0	32	32	6,006.0
REGION 3	1,886.0					
WITHOUT MANURE		14	1.0	33	33	8,769.0
STATE	2,450.0					
WITH MANURE		<u>3/</u>				
WITHOUT MANURE		18	1.0	33	33	14,775.0

1/ Refers to acres receiving one or more applications of a specific fertilizer ingredient.

2/ May not add due to rounding.

3/ Insufficient data to publish.

PHOSPHATE USAGE BY IRRIGATION METHOD

SOYBEANS: TOTAL ACREAGE, PERCENT OF ACRES TREATED, AND APPLICATION RATES, BY REGION, 1997						
METHOD OF IRRIGATION	ACRES		APPLICATION RATES			TOTAL APPLIED CROP YEAR (MILL. LBS) <u>2/</u>
	ASB ACRES (000)	PCT TREATED <u>1/</u>	MEAN NUMBER APPLI-CATIONS	RATE PER APPLI-CATION	RATE PER CROP YEAR	
REGION 1 & 2	564.0					
IRRIGATED		26	1.0	31	31	4,419.0
NON-IRRIGATED		7	1.0	38	38	1,612.0
REGION 3	1,886.0					
IRRIGATED		<u>3/</u>				
NON-IRRIGATED		12	1.0	31	31	6,909.0
STATE	2,450.0					
IRRIGATED		7	1.0	35	35	6,278.0
NON-IRRIGATED		11	1.0	33	33	8,522.0

1/ Refers to acres receiving one or more applications of a specific fertilizer ingredient.

2/ May not add due to rounding.

POTASH USAGE BY APPLICATION METHOD

SOYBEANS: TOTAL ACREAGE, PERCENT OF ACRES TREATED, AND APPLICATION RATES, BY REGION, 1997						
APPLICATION METHOD	PLANTED ACRES		APPLICATION RATES			TOTAL APPLIED CROP YEAR (MILL. LBS) <u>2/</u>
	ASB ACRES (000)	PCT TREATED <u>1/</u>	MEAN NUMBER APPLI-CATIONS	RATE PER APPLI-CATION	RATE PER CROP YEAR	
REGIONS 1 & 2	564.0					
BRDCST W/O INCORP		<u>3/</u>				
BRDCST W/ INCORP		<u>3/</u>				
IN SEED ROW		<u>3/</u>				
BANDED						
REGION 3	1,886.0					
BRDCST W/O INCORP		<u>3/</u>				
BRDCST W/ INCORP		5	1.0	75	75	6,644.0
IN SEED ROW		<u>3/</u>				
INJECT/KNIFED		<u>3/</u>				
STATE	2,450.0					
BRDCST W/O INCORP		<u>3/</u>				
BRDCST W/ INCORP		6	1.0	82	82	11,157.0
IN SEED ROW		<u>3/</u>				
INJECT/KNIFED		<u>3/</u>				
BANDED		<u>3/</u>				

1/ Refers to acres receiving one or more applications of a specific fertilizer ingredient.

2/ May not add due to rounding.

3/ Insufficient data to publish.

POTASH USAGE BY TIMING OF APPLICATION

SOYBEANS: TOTAL ACREAGE, PERCENT OF ACRES TREATED, AND APPLICATION RATES, BY REGION, 1997						
TIMING OF APPLICATION	ACRES		APPLICATION RATES			TOTAL APPLIED CROP YEAR (MILL. LBS) <u>2/</u>
	ASB ACRES (000)	PCT TREATED <u>1/</u>	MEAN NUMBER APPLI- CATIONS	RATE PER APPLI- CATION	RATE PER CROP YEAR	
REGION 1 & 2	564.0					
BEFORE FALL		<u>3/</u>				
BEFORE SPRING		<u>3/</u>				
AT SEEDING		<u>3/</u>				
AFTER SEEDING						
REGION 3	1,886.0					
BEFORE FALL		<u>3/</u>				
BEFORE SPRING		<u>3/</u>				
AT SEEDING		<u>3/</u>				
AFTER SEEDING		<u>3/</u>				
STATE	2,450.0					
BEFORE FALL		4	1.0	52	52	4,844.0
BEFORE SPRING		<u>3/</u>				
AT SEEDING		<u>3/</u>				
AFTER SEEDING		<u>3/</u>				

1/ Refers to acres receiving one or more applications of a specific fertilizer ingredient.

2/ May not add due to rounding.

3/ Insufficient data to publish.

POTASH USAGE BY STANDARD SOIL TEST

SOYBEANS: TOTAL ACREAGE, PERCENT OF ACRES TREATED, AND APPLICATION RATES, BY REGION, 1997						
SOIL TEST	ACRES		APPLICATION RATES			TOTAL APPLIED CROP YEAR (MILL. LBS) <u>2/</u>
	ASB ACRES (000)	PCT TREATED <u>1/</u>	MEAN NUMBER APPLI-CATIONS	RATE PER APPLI-CATION	RATE PER CROP YEAR	
REGION 1 & 2	564.0					
WITH SOIL TEST		<u>3/</u>				
NO SOIL TEST		<u>3/</u>				
REGION 3	1,886.0					
NO SOIL TEST		13	1.0	54	54	13,312.0
STATE	2,450.0					
WITH SOIL TEST		<u>3/</u>				
NO SOIL TEST		11	1.0	51	51	13,371.0

1/ Refers to acres receiving one or more applications of a specific fertilizer ingredient.

2/ May not add due to rounding.

3/ Insufficient data to publish.

POTASH USAGE BY PLANT TISSUE

SOYBEANS: TOTAL ACREAGE, PERCENT OF ACRES TREATED, AND APPLICATION RATES, BY REGION, 1997						
SOIL TEST	ACRES		APPLICATION RATES			TOTAL APPLIED CROP YEAR (MILL. LBS) <u>2/</u>
	ASB ACRES (000)	PCT TREATED <u>1/</u>	MEAN NUMBER APPLI-CATIONS	RATE PER APPLI-CATION	RATE PER CROP YEAR	
REGION 1 & 2	564.0					
USED TISSUE TEST		<u>3/</u>				
NO TISSUE TEST		<u>3/</u>				
REGION 3	1,886.0					
NO TISSUE TEST		13	1.0	54	54	13,312.0
STATE	2,450.0					
USED TISSUE TEST		<u>3/</u>				
NO TISSUE TEST		13	1.1	51	57	18,704.0

1/ Refers to acres receiving one or more applications of a specific fertilizer ingredient.

2/ May not add due to rounding.

3/ Insufficient data to publish.

POTASH USAGE BY MANURE APPLICATION

SOYBEANS: TOTAL ACREAGE, PERCENT OF ACRES TREATED, AND APPLICATION RATES, BY REGION, 1997						
MANURE APPLICATION	ACRES		APPLICATION RATES			TOTAL APPLIED CROP YEAR (MILL. LBS) <u>2/</u>
	ASB ACRES (000)	PCT TREATED <u>1/</u>	MEAN NUMBER APPLI- CATIONS	RATE PER APPLI- CATION	RATE PER CROP YEAR	
REGION 1 & 2	564.0					
WITHOUT MANURE		<u>3/</u>				
REGION 3	1,886.0					
WITHOUT MANURE		13	1.0	54	54	13,312.0
STATE	2,450.0					
WITHOUT MANURE		15	1.1	48	53	18,900.0

1/ Refers to acres receiving one or more applications of a specific fertilizer ingredient.

2/ May not add due to rounding.

3/ Insufficient data to publish.



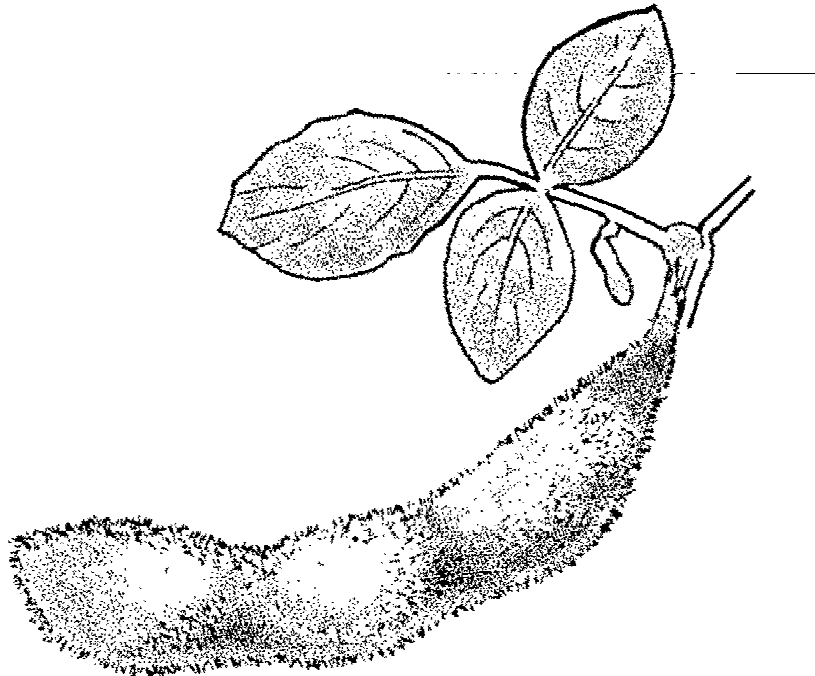
POTASH USAGE BY IRRIGATION METHOD

SOYBEANS: TOTAL ACREAGE, PERCENT OF ACRES TREATED, AND APPLICATION RATES, BY REGION, 1997						
METHOD OF IRRIGATION	ACRES		APPLICATION RATES			TOTAL APPLIED CROP YEAR (MILL. LBS) <u>2/</u>
	ASB ACRES (000)	PCT TREATED <u>1/</u>	MEAN NUMBER APPLI- CATIONS	RATE PER APPLI- CATION	RATE PER CROP YEAR	
REGION 1 & 2	564.0					
IRRIGATED		<u>3/</u>				
NON-IRRIGATED		<u>3/</u>				
REGION 3	1,886.0					
IRRIGATED		<u>3/</u>				
NON-IRRIGATED		11	1.0	53	53	10,819.0
STATE	2,450.0					
IRRIGATED		<u>3/</u>				
NON-IRRIGATED		9	1.0	50	50	10,875.0

1/ Refers to acres receiving one or more applications of a specific fertilizer ingredient.

2/ May not add due to rounding.

3/ Insufficient data to publish.



GENERAL FERTILIZER PRACTICES

SOYBEANS: SPECIAL PRACTICES BY REGION, 1997 Percent Usage	
REGION	PERFORMED SOIL TEST
	PERCENT
REGION 1 & 2	42
REGION 3	9
STATE	19

PESTICIDE USAGE BY TYPE OF PESTICIDE

SOYBEANS: TOTAL ACREAGE, PERCENT OF ACRES TREATED, AND TOTAL POUNDS APPLIED, BY REGION, 1997			
TYPE OF PESTICIDE	PLANTED ACRES		TOTAL APPLIED (000) LBS
	ASB ACRES (000)	PCT TREATED 1/	
REGION 1 & 2	564.0		
HERBICIDES		86	611.0
INSECTICIDES		2/	
REGION 3	1,886.0		
HERBICIDES		96	2,274.0
STATE	2,450.0		
HERBICIDES		94	2,885.0
INSECTICIDES		2/	

1/ Refers to acres receiving one or more applications of a specific pesticide ingredient.

2/ Insufficient data to publish.

PESTICIDE USAGE BY ACTIVE INGREDIENT

SOYBEANS: TOTAL ACREAGE, PERCENT OF ACRES TREATED, AND APPLICATION RATES, BY REGION, 1997						
TYPE OF HERBICIDE	PLANTED ACRES		APPLICATION RATES			TOTAL APPLIED CROP YEAR (000) LBS 2/
	ASB ACRES (000)	PCT TREATED 1/	MEAN NUMBER APPLI- CATIONS	RATE PER APPLI- CATION	RATE PER CROP YEAR	
REGION 1 & 2	564.0					
GLYPHOSATE		40	1.2	0.57	0.68	153.9
IMAZAQUIN		7	1.0	0.09	0.09	3.7
IMAZETHAPYR		17	1.0	0.03	0.03	2.9
PENDIMETHALIN		16	1.0	1.13	1.13	99.9
TRIFLURALIN		34	1.2	0.91	1.12	217.1
ACIFLUORFEN		3/				
ALACHLOR		3/				
CHLORIMURON-ETHYL		3/				
FLUMICLORAC PENTYL		3/				
LACTOFEN		3/				
METOLACHLOR		3/				
METRIBUZIN		3/				
REGION 3	1,886.0					
2,4-D		9	1.0	0.32	0.32	52.0
ACIFLUORFEN		22	1.0	0.17	0.17	70.9
BENTAZON		18	1.0	0.69	0.69	230.0
CHLORIMURON-ETHYL		7	1.2	0.04	0.05	6.0
GLYPHOSATE		17	1.5	0.63	0.95	312.1
IMAZAQUIN		33	1.1	0.10	0.11	67.4
IMAZETHAPYR		16	1.0	0.05	0.05	15.1
LACTOFEN		2	1.0	0.09	0.09	3.1
METOLACHLOR		7	1.0	1.41	1.41	195.7
METRIBUZIN		27	1.0	0.37	0.37	186.6
PENDIMETHALIN		40	1.0	0.86	0.86	644.1
TRIFLURALIN		22	1.1	0.85	0.90	370.9
ALACHLOR		3/				
FLUMICLORAC PENTYL		3/				
STATE	2,450.0					
2,4-D		7	1.0	0.32	0.32	52.0
ACIFLUORFEN		17	1.0	0.17	0.17	72.0
BENTAZON		14	1.0	0.69	0.69	230.0
CHLORIMURON-ETHYL		12	1.2	0.02	0.02	6.0
FLUMICLORAC PENTYL		2	1.0	0.02	0.02	1.0
GLYPHOSATE		22	1.4	0.61	0.86	466.0
IMAZAQUIN		29	1.1	0.10	0.10	71.0
IMAZETHAPYR		15	1.0	0.05	0.05	18.0
LACTOFEN		3	1.0	0.10	0.10	8.0
METOLACHLOR		8	1.0	1.52	1.52	288.0
METRIBUZIN		22	1.0	0.40	0.40	214.0
PENDIMETHALIN		35	1.0	0.88	0.88	744.0
TRIFLURALIN		26	1.1	0.87	0.92	588.0
ALACHLOR		3/				

1/ Refers to acres receiving one or more applications of specific pesticide ingredient. 2/ May not add due to rounding. 3/ Insufficient reports to publish.

PESTICIDE USAGE BY TARGET PEST

BROADLEAVES, ANNUAL

SOYBEANS: TOTAL ACREAGE, PERCENT OF ACRES TREATED, AND APPLICATION RATES, BY REGION, 1997						
TYPE OF PESTICIDE	PLANTED ACRES		APPLICATION RATES			TOTAL APPLIED CROP YEAR (000) LBS <u>2/</u>
	ASB ACRES (000)	PCT TREATED <u>1/</u>	MEAN NUMBER APPLI- CATIONS	RATE PER APPLI- CATION	RATE PER CROP YEAR	
REGION 1 & 2	564.0					
GLYPHOSATE		40	1.2	0.56	0.68	153.4
TRIFLURALIN		5	1.0	0.89	0.89	25.3
ACIFLUORFEN		<u>3/</u>				
CHLORIMURON ETHYL		<u>3/</u>				
IMAZAQUIN		<u>3/</u>				
IMAZETHAPYR		<u>3/</u>				
LACTOFEN		<u>3/</u>				
METRIBUZIN		<u>3/</u>				
PENDIMETHALIN		<u>3/</u>				
REGION 3	1,886.0					
ACIFLUORFEN		7	1.0	0.20	0.20	27.5
CHLORIMURON ETHYL		8	1.0	0.02	0.02	3.0
GLYPHOSATE		8	1.1	0.65	0.74	106.6
IMAZAQUIN		23	1.1	0.10	0.11	46.5
IMAZETHAPYR		7	1.0	0.06	0.06	6.9
METRIBUZIN		19	1.0	0.36	0.36	126.7
PENDIMETHALIN		18	1.0	0.77	0.77	257.3
TRIFLURALIN		6	1.0	0.43	0.43	50.7
LACTOFEN		<u>3/</u>				
STATE	2,450.0					
ACIFLUORFEN		6	1.0	0.19	0.19	28.0
CHLORIMURON ETHYL		6	1.0	0.02	0.02	3.0
GLYPHOSATE		15	1.2	0.60	0.71	260.0
IMAZAQUIN		18	1.1	0.10	0.11	48.0
IMAZETHAPYR		7	1.0	0.05	0.05	8.0
LACTOFEN		3	1.0	0.10	0.10	7.0
METRIBUZIN		15	1.0	0.36	0.36	128.0
PENDIMETHALIN		14	1.0	0.77	0.77	260.0
TRIFLURALIN		6	1.0	0.50	0.50	76.0

1/ Refers to acres receiving one or more applications of a specific pesticide ingredient.

2/ May not add due to rounding.

3/ Insufficient data to publish.

PESTICIDE USAGE BY TARGET PEST

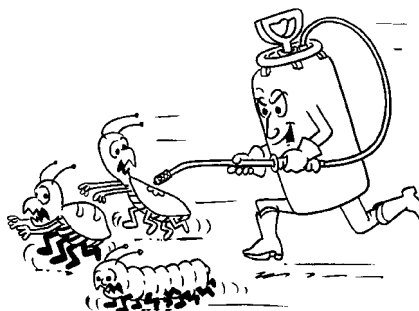
BROADLEAVES, PERENNIAL

SOYBEANS: TOTAL ACREAGE, PERCENT OF ACRES TREATED, AND APPLICATION RATES, BY REGION, 1997						
TYPE OF PESTICIDE	PLANTED ACRES		APPLICATION RATES			TOTAL APPLIED CROP YEAR (000) LBS <u>2/</u>
	ASB ACRES (000)	PCT TREATED <u>1/</u>	MEAN NUMBER APPLI- CATIONS	RATE PER APPLI- CATION	RATE PER CROP YEAR	
REGION 1 & 2	564.0					
IMAZAQUIN		<u>3/</u>				
IMAZETHAPYR		<u>3/</u>				
PENDIMETHALIN		<u>3/</u>				
REGION 3	1,886.0					
IMAZAQUIN		4	1.0	0.11	0.11	7.4
PENDIMETHALIN		2	1.0	0.84	0.84	30.9
ACIFLUORFEN		<u>3/</u>				
IMAZETHAPYR		<u>3/</u>				
STATE	2,450.0					
IMAZAQUIN		4	1.0	0.10	0.10	9.0
IMAZETHAPYR		3	1.0	0.04	0.04	3.0
PENDIMETHALIN		3	1.0	0.87	0.87	54.0
ACIFLUORFEN		<u>3/</u>				

1/ Refers to acres receiving one or more applications of a specific pesticide ingredient.

2/ May not add due to rounding.

3/ Insufficient data to publish.



PESTICIDE USAGE BY TARGET PEST FOXTAILS

TYPE OF PESTICIDE	PLANTED ACRES		APPLICATION RATES			TOTAL APPLIED CROP YEAR (000) LBS <u>2/</u>
	ASB ACRES (000)	PCT TREATED <u>1/</u>	MEAN NUMBER APPLI-CATIONS	RATE PER APPLI-CATION	RATE PER CROP YEAR	
REGION 1 & 2	564.0					
PENDIMETHALIN		<u>3/</u>				
REGION 3	1,886.0					
PENDIMETHALIN		4	1.0	0.87	0.87	63.2
STATE	2,450.0					
PENDIMETHALIN		3	1.0	0.87	0.87	64.0

1/ Refers to acres receiving one or more applications of a specific pesticide ingredient.

2/ May not add due to rounding.

3/ Insufficient data to publish.

PESTICIDE USAGE BY TARGET PEST JOHNSON GRASS

SOYBEANS: TOTAL ACREAGE, PERCENT OF ACRES TREATED, AND APPLICATION RATES, BY REGION, 1997						
TYPE OF PESTICIDE	PLANTED ACRES		APPLICATION RATES			TOTAL APPLIED CROP YEAR (000) LBS <u>2/</u>
	ASB ACRES (000)	PCT TREATED <u>1/</u>	MEAN NUMBER APPLI-CATIONS	RATE PER APPLI-CATION	RATE PER CROP YEAR	
REGION 1 & 2	564.0					
TRIFLURALIN		<u>3/</u>				
REGION 3	1,886.0					
TRIFLURALIN		1	1.0	1.13	1.13	22.6
STATE	2,450.0					
TRIFLURALIN		1	1.0	1.06	1.06	31.0

1/ Refers to acres receiving one or more applications of a specific pesticide ingredient.

2/ May not add due to rounding.

3/ Insufficient data to publish.

PESTICIDE USAGE BY TARGET PEST

OTHER GRASSES

SOYBEANS: TOTAL ACREAGE, PERCENT OF ACRES TREATED, AND APPLICATION RATES, BY REGION, 1997						
TYPE OF PESTICIDE	PLANTED ACRES		APPLICATION RATES			TOTAL APPLIED CROP YEAR (000) LBS <u>2/</u>
	ASB ACRES (000)	PCT TREATED <u>1/</u>	MEAN NUMBER APPLI- CATIONS	RATE PER APPLI- CATION	RATE PER CROP YEAR	
REGION 1 & 2	564.0					
TRIFLURALIN		26	1.3	0.92	1.15	167.1
IMAZAQUIN		<u>3/</u>				
PENDIMETHALIN		<u>3/</u>				
REGION 3	1,886.0					
GLYPHOSATE		4	1.0	0.66	0.66	52.0
IMAZAQUIN		6	1.5	0.09	0.14	14.8
PENDIMETHALIN		8	1.0	1.06	1.06	160.3
TRIFLURALIN		7	1.0	0.94	0.94	116.9
STATE	2,450.0					
GLYPHOSATE		3	1.0	0.66	0.66	52.0
IMAZAQUIN		7	1.1	0.09	0.09	15.0
PENDIMETHALIN		9	1.0	0.11	0.11	230.0
TRIFLURALIN		11	1.1	0.93	1.04	284.0

1/ Refers to acres receiving one or more applications of a specific pesticide ingredient.

2/ May not add due to rounding.

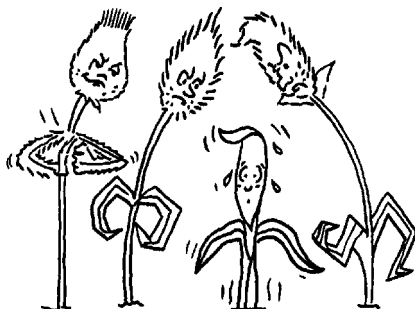
3/ Insufficient data to publish.

HERBICIDE USAGE BY APPLICATION METHOD

SOYBEANS: TOTAL ACREAGE AND PERCENT OF ACRES TREATED BY REGION, 1997		
APPLICATION METHOD	ACRES	
	ASB ACRES (000)	PCT ACRES TREATED <u>1/</u>
REGION 1 & 2	564.0	
BRDCST W/O INCORP		51
BRDCST W/ INCORP		28
BANDED		13
FOLIAR/DIRECT		18
REGION 3	1,886.0	
BRDCST W/O INCORP		47
BRDCST W/ INCORP		43
BROADCAST AIR		<u>2/</u>
FOLIAR/DIRECT		27
STATE	2,450.0	
BRDCST W/O INCORP		48
BRDCST W/ INCORP		40
BROADCAST AIR		<u>2/</u>
BANDED		3
FOLIAR/DIRECT		25

1/ Refers to acres receiving one or more applications of a specific herbicide ingredient.

2/ Insufficient data to publish.



HERBICIDE USAGE BY TIMING OF APPLICATION

SOYBEANS: TOTAL ACREAGE AND PERCENT OF ACRES TREATED BY REGION, 1997		
TIMING OF APPLICATION <u>1/</u>	ACRES	
	ASB ACRES (000)	PCT ACRES TREATED <u>2/</u>
REGION 1 & 2	564.0	
BEFORE PLANTING		38
AT PLANTING		<u>2/</u>
AFTER PLANTING		64
REGION 3	1,886.0	
BEFORE PLANTING		69
AT PLANTING		5
AFTER PLANTING		64
STATE	2,450.0	
BEFORE PLANTING		63
AT PLANTING		5
AFTER PLANTING		65

1/ At planting is defined as 3 days before planting to 3 days after planting.

2/ Refers to acres receiving one or more applications of a specific herbicide ingredient.



HERBICIDE USAGE BY APPLICATOR

SOYBEANS: TOTAL ACREAGE AND PERCENT OF ACRES TREATED BY REGION, 1997		
TIMING OF APPLICATION	ACRES	
	ASB ACRES (000)	PCT ACRES TREATED 1/
REGION 1 & 2	564.0	
OPERATOR		33
CUSTOM		61
REGION 3	1,886.0	
OPERATOR		40
CUSTOM		58
STATE	2,450.0	
OPERATOR		38
CUSTOM		58

1/ Refers to acres receiving one or more applications of a specific herbicide ingredient.

2/ Insufficient data to publish.

RECORDS USE

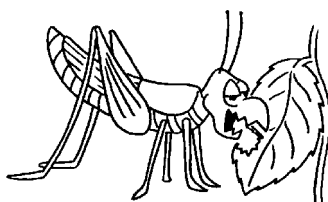
SOYBEANS: USE OF RECORDS TO PROVIDE SURVEY DATA BY REGION, 1997		
REGION	FERTILIZER	PESTICIDE
----- PERCENT -----		
REGION 1 & 2	90	70
REGION 3	92	67
STATE	92	68

PEST MANAGEMENT PRACTICES

SOYBEANS: FIELD SCOUTING FOR PESTS BY REGION, 1997					
PEST BY REGION	SCOUTED PERCENT	BY			
		OPERATOR	EMPLOYEE	DEALER	CONSULTANT
		----- PERCENT -----			
FOR WEEDS					
REGION 1 & 2	88	74		6	20
REGION 3	82	95		3	3
STATE	84	89		4	8
FOR INSECTS					
REGION 1 & 2	80	75		3	22
REGION 3	55	98		-	2
STATE	63	91		1	8
FOR DISEASES					
REGION 1 & 2	78				
REGION 3	51				
STATE	80				

SOYBEANS: RECORDS OF SCOUTING BY REGION, 1997			
REGION	BROAD LEAF WEEDS	GRASS WEEDS	INSECTS
----- PERCENT -----			
REGION 1 & 2	25	19	11
REGION 3	25	25	3
STATE	22	25	7

SOYBEANS: CULTIVATED FOR WEED CONTROL BY REGION, 1997	
REGION	CULTIVATED (PERCENT)
REGION 1 & 2	48
REGION 3	24
STATE	31



PEST MANAGEMENT PRACTICES

SOYBEANS: WEED RESISTANCE BY REGION, 1997	
REGION	HERBICIDES 1/
	----- PERCENT -----
REGION 1 & 2	5
REGION 3	8
STATE	7

1/ Pinnacle, Pursuit, etc.

SOYBEANS: APPLIED PRE-EMERGENCE HERBICIDES BY REGION, 1997					
REGION	APPLIED PERCENT	BASED ON			
		ROUTINE TREATMENT	FIELD MAPPING	RECOMMENDATION BY CHEMICAL DEALER	CROP CONSULTANT
		----- PERCENT -----			
REGION 1 & 2	48	68	53	42	11
REGION 3	71	94	16	30	3
STATE	64	89	24	32	5

SOYBEANS: APPLIED POST-EMERGENCE HERBICIDES BY REGION, 1997					
REGION	APPLIED PERCENT	BASED ON			
		ROUTINE TREATMENT	TYPE &/OR DENSITY OF WEEDS	RECOMMENDATION BY CHEMICAL DEALER	CROP CONSULTANT
		----- PERCENT -----			
REGION 1 & 2	72	48	48	20	32
REGION 3	48	67	63	41	4
STATE	52	61	58	34	14

PEST MANAGEMENT PRACTICES

SOYBEANS: PEST CONTROL PRACTICES BY REGION, 1997				
METHOD BY REGION	PERCENT OF PRODUCERS	PRODUCERS USING PRACTICE TO CONTROL: <u>2/</u> <u>3/</u>		
		WEEDS ONLY	INSECTS ONLY	BOTH
----- PERCENT -----				
ADJUST ROW SPACING OR PLANT DENSITY				
REGION 1 & 2	5	50	<u>1/</u>	<u>1/</u>
REGION 3	19	83	6	6
STATE	15	80	5	5
ADJUST PLANTING DATE				
REGION 1 & 2	3	100		<u>1/</u>
REGION 3	7	71		29
STATE	6	75		25
ALTERNATING PESTICIDES				
REGION 1 & 2	23	44		56
REGION 3	37	74	6	17
STATE	32	68	5	25
TILLING, MOWING, BURNING, OR CHOPPING FIELD EDGES				
REGION 1 & 2	40	50		44
REGION 3	49	40	13	43
STATE	46	43	9	43
FIELD ROTATION PAST 3 YEARS				
REGION 1 & 2	58	48		43
REGION 3	47	67	9	22
STATE	50	60	6	30
CLEANING TILLAGE AND HARVESTING EQUIPMENT				
REGION 1 & 2	63	33		60
REGION 3	24	78		13
STATE	28	61		32

1/ Insufficient data to publish. 2/ Represents breakout of producers who performed practices by whether they performed the practice for weeds only, insects only, or both. 3/ Some respondents did not indicate which pest they were trying to control. This may account for missing data.

PEST MANAGEMENT PRACTICES

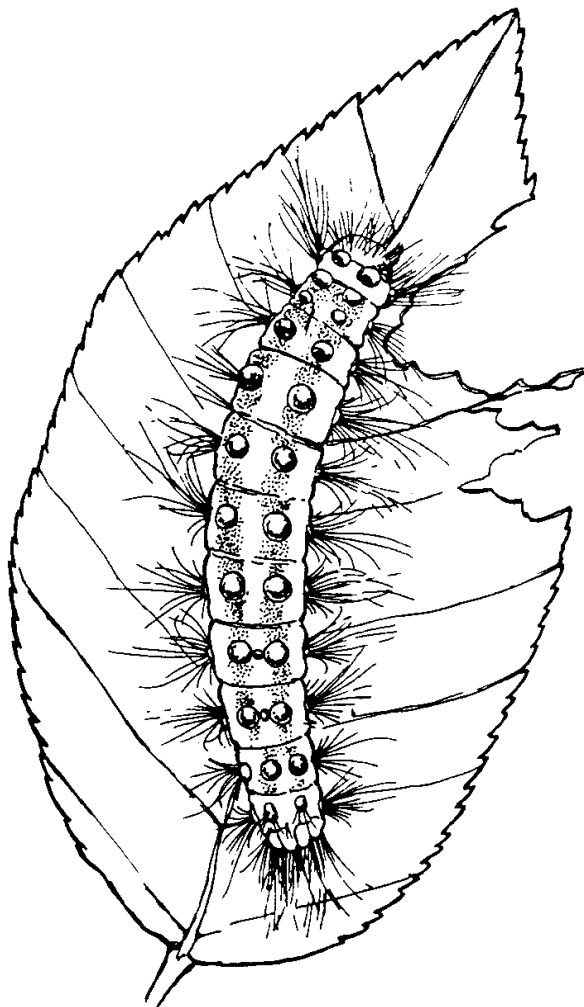
SOYBEANS: SPECIAL PRACTICES BY REGION, 1997					
REGION	BIOLOGICAL SOIL ANALYSIS TO DETECT PESTS	CONSIDER BENEFICIAL INSECTS IN SELECTING PESTICIDES	REMOVE WEEDS TO PREVENT INSECT EGG LAYING	USE SEED TREATMENT TO SEEDLING BLIGHT CONTROL	SUBMIT DISEASED PLANTS TO LAB FOR ANALYSIS
----- PERCENT -----					
REGION 1 & 2	0	3	8	8	0
REGION 3	1	4	4	11	0
STATE	1	4	5	10	0

SOYBEANS: SPECIAL PRACTICES BY REGION, 1997	
REGION	PURCHASES BENEFICIAL INSECTS
----- PERCENT -----	
REGION 1 & 2	0
REGION 3	1
STATE	1

SOYBEANS: INFORMATION SOURCES BY REGION, 1997				
REGION	UNIVERSITY RESEARCH AND EXTENSION	COMMERCIAL SCOUTING	CROP CONSULTANT	OTHER GROWERS
----- PERCENT -----				
REGION 1 & 2	8	8	20	5
REGION 3	12	0	1	6
STATE	10	2	7	6
REGION	PRODUCER ASSOCIATION	ELECTRONIC	OTHER	NONE
----- PERCENT -----				
REGION 1 & 2	0	0	8	5
REGION 3	5	1	2	6
STATE	3	1	4	6

PEST MANAGEMENT PRACTICES

SOYBEANS: PESTICIDE USE TRAINING BY REGION, 1997	
REGION	OPERATOR RECEIVED PESTICIDE IDENTIFICATION & MANAGEMENT TRAINING
	----- PERCENT -----
	-
REGION 1 & 2	15
REGION 3	16
STATE	15



SOYBEANS: HANDLING OF CHEMICALS

